ACTOR	
name	gender
fred	male
ginger	female
bing	male

MOVIE	
name	genre
m1	drama
m2	comedy

ROLE			
role	movie	actor	role-type
r1	m1	fred	hero
r2	m1	ginger	heroine
r3	m1	bing	villain
r4	m2	bing	hero
r5	m2	ginger	love-interest

Figure 1

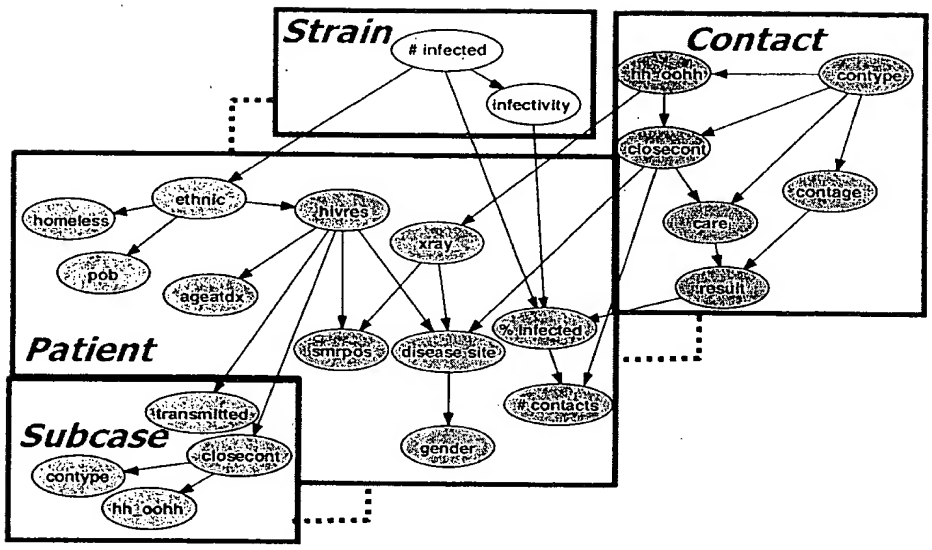

Strain
infected
infectivity
Contact
hh_oohh
contype
closecont
contage
ethnic
homeless
hivres
xray
pob
ageatdx
smrpos
disease_site
% infected
#_contacts
gender
Patient
Subcase
transmitted
closecont
contype
hh_oohh

Fig. 2

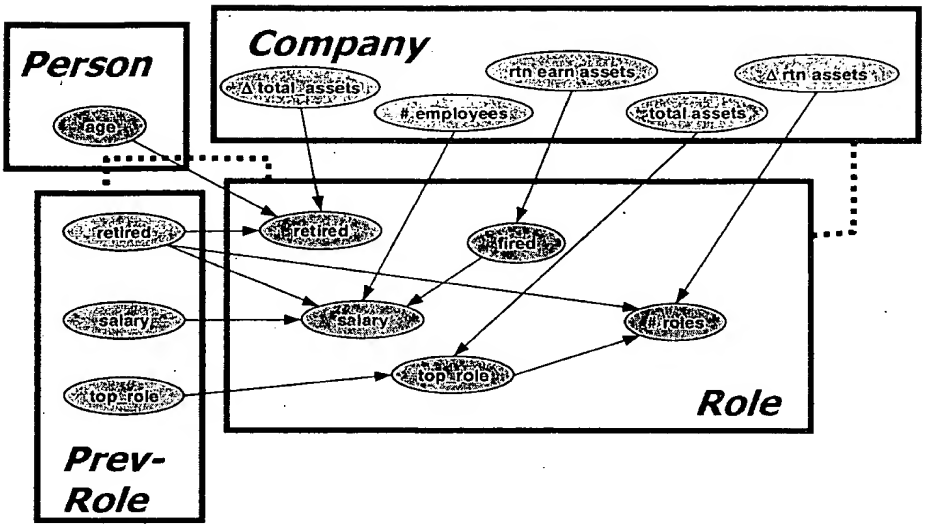

Person
age
Company
Δtotal assets
rtn earn assets
Δ rtn assets
#employees
total assets
retired
retired
fired
salary
salary
#roles
top role
top role
Role
Prev-
Role

Fig. 3

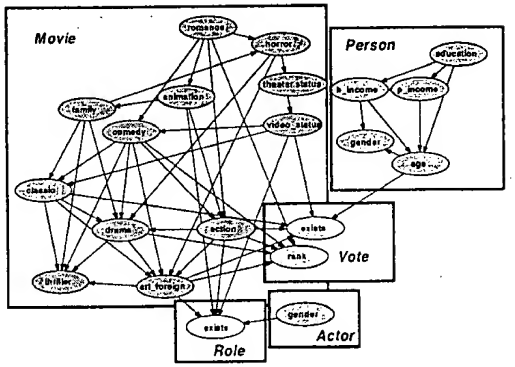


Fig. 4

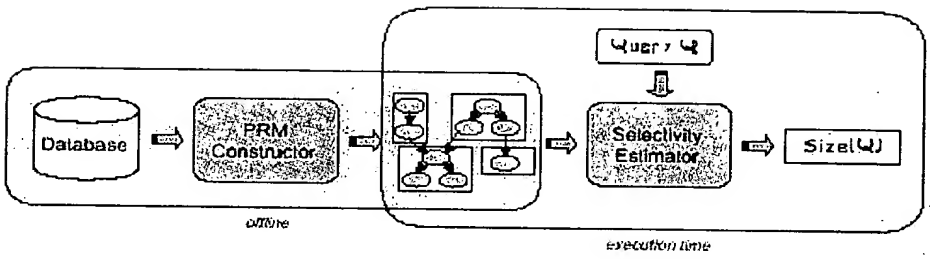

Query Q
Database
PRM Constructor
Selectivity Estimator
Size(Q)
offline
execution time

Figure 5

E	I	H	$P(E, I, H)$
h	l	f	0.27
h	l	t	0.03
h	m	f	0.105
h	m	t	0.045
h	h	f	0.005
h	h	t	0.045
c	l	f	0.135
c	l	t	0.015
c	m	f	0.063
c	m	t	0.027
c	h	f	0.006
c	h	t	0.054
a	l	f	0.018
a	l	t	0.002
a	m	f	0.042
a	m	t	0.018
a	h	f	0.012
a	h	t	0.108

Fig. 6(a)

E	$P(E)$
h	0.5
c	0.3
a	0.2

I	E	$P(I \mid E)$
l	h	0.6
m	h	0.3
h	h	0.1
l	c	0.5
m	c	0.3
h	c	0.2
l	a	0.1
m	a	0.3
h	a	0.6

H	I	$P(H \mid I)$
t	l	0.1
f	l	0.9
t	m	0.3
f	m	0.7
t	h	0.9
f	h	0.1

Fig. 6(b)

E	$P(E)$
h	0.5
c	0.3
a	0.2

I	$P(I)$
l	0.47
m	0.30
h	0.23

H	$P(H)$
t	0.344
f	0.656

Fig. 6 (c)

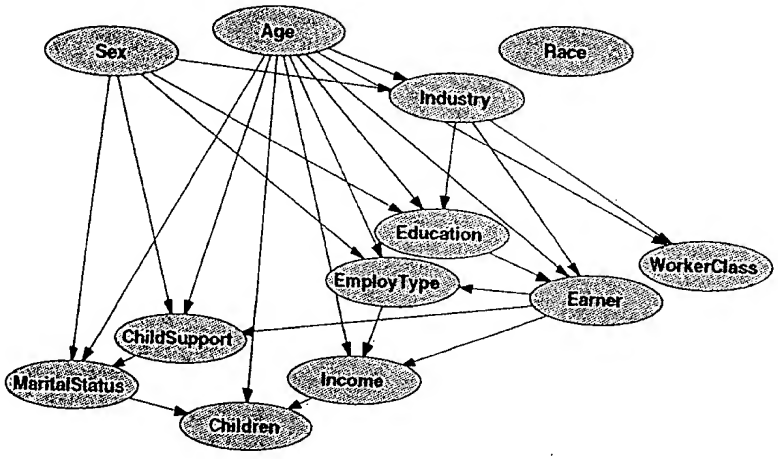


Fig. 7(a)

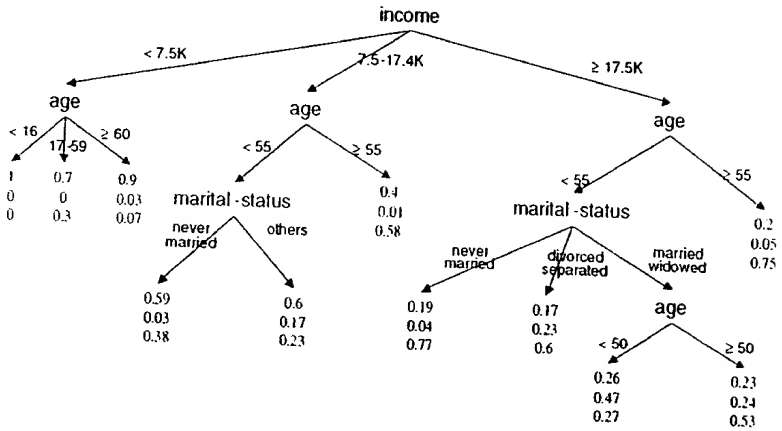


Fig. 7(b)

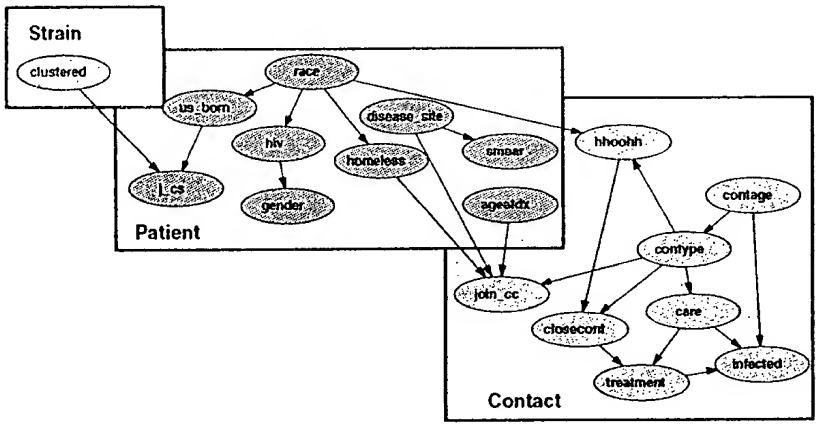


Fig. 8 (a)

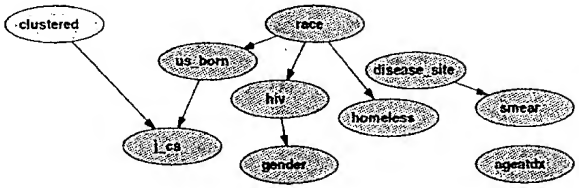
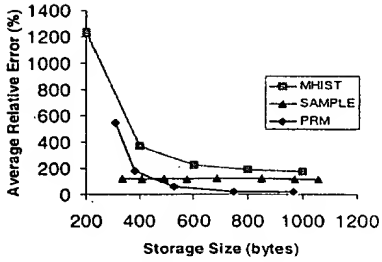
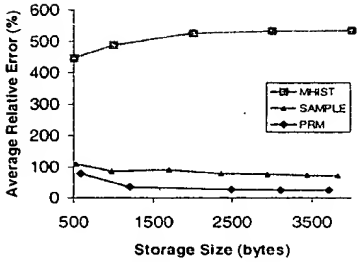


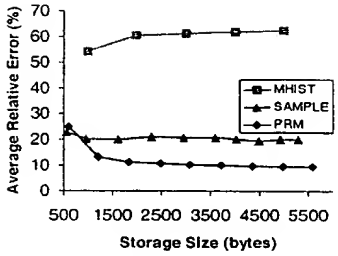
Fig. 8 (b)



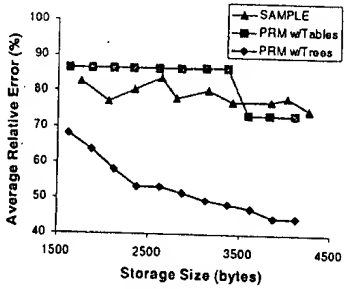
9 (a)



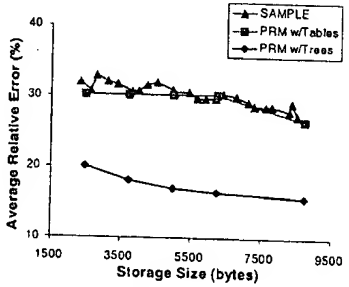
9 (b)



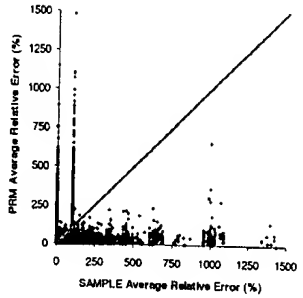
9 (c)


SAMPLE
PRM w/Tables
PRM w/Trees
Average Relative Error (%)
100
90
80
70
60
50
40
1500
2500
3500
4500
Storage Size (bytes)

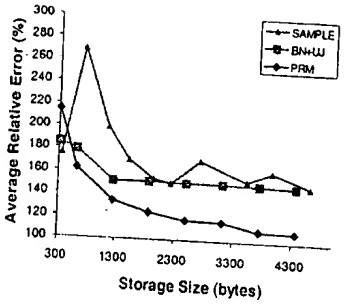
10 (a)


SAMPLE
PRM w/Tables
PRM w/Trees
Average Relative Error (%)
40
30
20
10
1500
3500
5500
7500
9500
Storage Size (bytes)

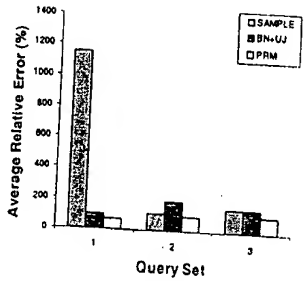
10 (b)


PRM Average Relative Error (%)
1500
1250
1000
750
500
250
0
0
250
500
750
1000
1250
1500
SAMPLE Average Relative Error (%)

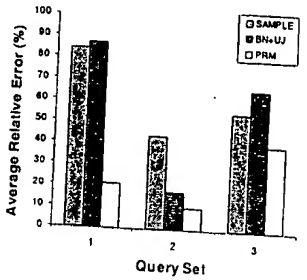
10 (c)



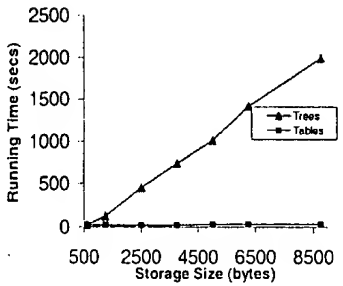
(a)



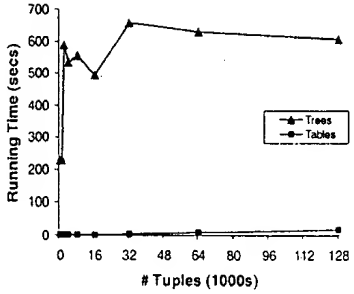
(b)



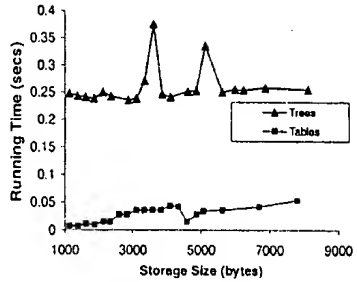
(c)


Running Time (secs)
2500
2000
1500
1000
500
0
500 2500 4500 6500 8500
Storage Size (bytes)
Trees
Tables

12 (a)


Running Time (secs)
700
600
500
400
300
200
100
0
0 16 32 48 64 80 96 112 128
Tuples (1000s)
Trees
Tables

12(b)


Running Time (secs)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1000 3000 5000 7000 9000
Storage Size (bytes)
Trees
Tables

12 (c)